

# PATENT ABSTRACTS OF JAPAN

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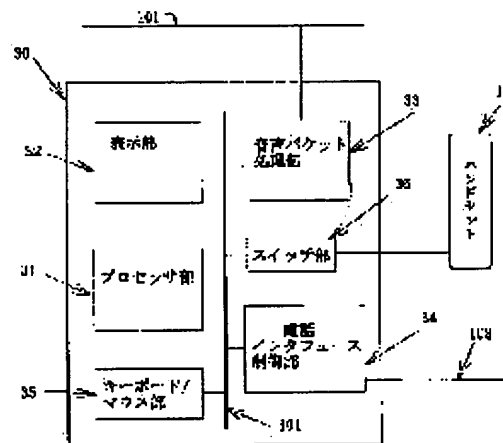
(72)Inventor : KOYAMA TOSHIKI

## (54) PACKET COMMUNICATION EQUIPMENT

### (57)Abstract:

**PURPOSE:** To reduce the processing burden of a communication gateway and to reduce cost by exclusively selecting a connecting network so that this equipment can be connected to either a general telephone network or a packet network only at the time of call incoming.

**CONSTITUTION:** When a packet communication equipment 30 is turned to the state of communicating with the other packet communication equipment connected to a Local Area Network(LAN) 101, a processor part 31 switches the voice input of a switch part 31 to the side of a voice packet processing part 33 and cuts off a voice input from the side of a telephone interface control part 34. When a call is terminated from a telephone set connected to the general telephone network in such a state, the processor part 31 generates a busy signal at the telephone interface control part 34 and returns it through a connection interface line 103 and a private branch exchange (PBX) to the telephone set at a call terminating source. Thus, since call incoming is exclusively controlled during communication, the user of the packet communication equipment 30 only deals with call incoming from one network.



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**CLAIMS**

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[Claim(s)]

[Claim 1]A packet-ized communication apparatus characterized by comprising the following.

A packet processing means which change into a packet information signals, such as a sound inputted from an input device, and it transmits to a packet form network, and changes a packet which received a message from a packet form network into information signal streams, such as a sound, and is reproduced from an output unit.

An exclusive control means as which either one of a common telephone network and a packet form network is chosen at a common telephone network interface control means to reproduce information signals, such as a sound whose common telephone network received a message, from said output unit, and the time of mail arrival.

[Claim 2]The packet-ized communication apparatus according to claim 1 having further an e-mail-ized means to change into a packet an information signal whose common telephone network received a message, and to transmit to a mail server in a packet form network, and to save at it.

[Claim 3]The packet-ized communication apparatus according to claim 1 or 2 with which device power is characterized by having further a control means which connects arrival from a common telephone network to a different juxtaposition output unit from said output unit at the time of un-supplying.

[Claim 4]One packet-ized communication apparatus of the statements to claims 1 thru/or 3, wherein said packet form network is connected to a common telephone network through a communication gateway.

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## DETAILED DESCRIPTION

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[Detailed Description of the Invention]

[0001]

[Industrial Application]This invention relates to a suitable packet-ized communication apparatus to send and receive a sound etc. between the communication networks where the signal forms which start the packet-ized communication apparatus which sends and receives a sound, a picture, etc. via a communication network, especially are sent and received differ.

[0002]

[Description of the Prior Art]In recent years, the network construction by LAN (Local Area Network) progresses, and the rate of LAN connection of minicomputers, such as a personal computer, is also increasing.

[0003]In such a situation, there is a motion which attains communicative integration by performing voice communication also on LAN in addition to a common telephone network (the PBX exchange network which is private-telephone exchange network is also included).

[0004]As this example, there is a "voice communication system" as shown in drawing 4.

[0005]This voice communication system comprises telephone connected to a common telephone network, a packet-ized communication apparatus connected to the network (it is henceforth called a packet-ized communication network) which communicates with the packet-ized sound, and a communication gateway which realizes those interconnection. The network which put the packetized voice on above-mentioned LAN is an example of a packet-ized communication network.

[0006]In drawing 4, 21 and 22 are telephones connected to PBX network (private-telephone exchange network) 13 or the public telephone network 20.

[0007]104 is a subscriber line of the private-telephone exchange network 13, 105 is a subscriber line of the public telephone network 20, and these serve as the same interface.

[0008]On the other hand, 101 is a network which transmits the packet-ized sound, for example, comprises CSMA/CD (career detection multi-access method with collision detection) LAN of IEEE802.3 standard.

[0009]Two or more packet-ized communication apparatus 14, 15, and 16 are connected to this LAN101.

[0010]The packet-ized communication apparatus 14, 15, and 16 comprise minicomputers, such as a personal computer provided with the hand sets 17, 18, and 19, respectively, It has a function which packet-izes the sound inputted from the hand sets 17-19, and is sent out on LAN101, and a function which changes into the usual audio stream the packetized voice which received via LAN101 conversely, and is reproduced as a sound from the hand sets 17, 18, and 19.

[0011]11 is a mail box which is connected to LAN101 and accumulates the file-ized mail, The packet-ized communication apparatus 14, 15, and 16 accumulate the voice mail file-ized through LAN101 in the mail box 11, or, Voice mail is taken out from other packet-ized communication apparatus accumulated in the mail box 11, it changes into an audio stream within a self-device, and

it is possible to reproduce as a sound from the hand sets 17, 18, and 19.

[0012]12 is a communication gateway which controls communication between LAN101 which is a packet-ized communication network, and PBX network 13 which is common telephone networks.

[0013]In this case, although the subscriber line which accommodates the existing telephone is adopted, the interface between private-telephone switchboards may generally be used for the path cord 102 between the private-telephone exchange network 13 and the communication gateway 12.

[0014]In the voice communication system constituted in this way, when performing voice communication between the voice communication devices 14-16 in LAN101, when communicating among the voice communication devices 14 and 16, the communication path 121 is transmitted to a packetized voice, for example.

[0015]On the other hand, when the voice communication device 14 communicates with the telephone 21 or 22 connected to the private-telephone exchange network 13 or the public telephone network 20, in LAN101, a packetized voice is transmitted through the communication path 122.

[0016]In this case, the packet-ized sound on LAN101 is changed into an audio stream in the communication gateway 12, and is transmitted to the private-telephone exchange network 13 or the public telephone network 20.

[0017]About the sound which faces to the voice communication device 14 in LAN101 from the private-telephone exchange network 13 or public telephone network 20 side, the audio stream is packet-ized by the communication gateway 12, and is sent out to LAN101.

[0018]

[Problem(s) to be Solved by the Invention]By the way, although the number of splicing terminals to a packet-ized communication network is increasing when integrating the voice communication in a packet-ized communication network in a form also including a common telephone network, there are many users who hold the telephone actually connected to the common telephone network overwhelmingly.

[0019]Therefore, when integrating voice communication is considered, it is expected that traffic with the telephone connected to the common telephone network carries out a considerable increase.

[0020]On the other hand, when the future of a packet-ized communication network is viewed, it is made clear that the gestalt that the user who has already held telephone newly joins the network increases. For example, although only the user of specific statuses, such as the management, holds the packet-ized communication apparatus in LAN in a company now, it is clear that the introductory gestalt of making all the personnel hold a packet-ized communication apparatus in the future increases.

[0021]However, the packet-ized communication apparatus connected into a packet-ized communication network if it is in conventional technology, Since it thinks as what performs communication in packet format fundamentally, when integrating voice communication in the form which even the common telephone network included, the problem of load concentrating to a communication gateway and falling into connection impossible or communication impossible occurs.

[0022]Since both telephone and a packet-ized communication apparatus will be held per same user when the user who has already held telephone installs a packet-ized communication apparatus newly, Cost increases and the problem that it cannot respond when needed information occurs simultaneously from both occurs. This is the same even when the user who holds only the packet-ized communication apparatus newly installs telephone.

[0023]The purpose of this invention is to provide the packet-ized communication apparatus which can perform certainly and economically communication between the communication apparatus in a common telephone network and a packet form network.

[0024]

[Means for Solving the Problem]In this invention, to achieve the above objects besides a connect function to a packet form network, A connect function to a common telephone network was added,

and also a connection path is chosen by classification of a partner connecting network at the time of dispatch, and it is characterized by forming a means to choose a connecting network exclusively so that it may be connected to either one of a common telephone network and a packet form network at the time of mail arrival.

[0025]Namely, change into a packet information signals, such as a sound inputted from an input device (for example, transmitter of a hand set), and transmit to a packet form network, and. A packet processing means which changes a packet which received a message from a packet form network into information signal streams, such as a sound, and is reproduced from an output unit (for example, receiver of a hand set), It has an exclusive control means which chooses either one of a common telephone network and a packet form network at a common telephone network interface control means to reproduce information signals, such as a sound whose common telephone network received a message, from said output unit, and the time of mail arrival.

[0026]

[Function]When communicating among communication apparatus, such as telephone connected to a common telephone network, according to the above-mentioned means, a channel is formed of the connect function to a common telephone network. Between the communication apparatus in a packet form network, a channel is formed of the connect function to the network.

[0027]Therefore, the communication using a communication gateway, It becomes only between the communication apparatus (for example, telephone) connected for seeing to a common telephone network, and the communication apparatus connected only to the packet form network, Concentration of addition to a communication gateway is avoided, and even if it is when there are many communication apparatus connected to a common telephone network, communication of a sound, a picture, etc. can be ensured between the communication apparatus in a common telephone network and a packet form network.

[0028]In the user who has already held the telephone connected to the common telephone network, Since what is necessary is just to connect a general telephone subscriber line to the packet-ized communication apparatus of this invention when installing a packet-ized communication apparatus newly, telephone can be deleted and a sound, a picture, etc. can be communicated economically.

[0029]In this case, since only either is connected and the measures of busy treatment are taken to the arrival of the other when there is mail arrival in a packet form network simultaneously from a common telephone network, it is lost that a user becomes correspondence difficulty.

[0030]

[Example]Hereafter, based on the example illustrating this invention, it explains in detail.

[0031]Drawing 1 is a system configuration figure showing one example of the system using the packet-ized communication apparatus by this invention, and has given the same numerals about the thing of the same function as the component of drawing 4.

[0032]In drawing 1, 30 is a packet-ized communication apparatus which has a function connected with a common telephone network both LAN101 (packet-ized communication network).

The connection interface line 103 to the private-telephone exchange network 13 which is the connection path and common telephone network to the packet-ized voice network 101 is provided. The connection interface line 103 is the same interface as the subscriber line which connects the telephones 21 and 22.

[0033]Drawing 3 is a block diagram showing the detailed composition of the packet-ized communication apparatus 30.

The processor part 31 which controls the whole, the indicator 32 which displays various messages, such as mail arrival, the address input screen for partner selection, etc. to a user, the keyboard/mouse part 35 which inputs operation information, and the voice input/output from the hand set 19 are processed, . [ whether the audio stream to the packetized voice treating part 33 which transmits and receives the packetized voice by the side of LAN101, the telephone interface control 34 which controls the subscriber's line interface of a common telephone network, and the

hand set 19 is chosen from LAN101 side, and ] It comprises the switch 36 of whether to choose out of the common telephone network 13 side, and these are connected by bus 301.

[0034]The processor part 31 in the device by which the mating device is connected to LAN101 by incoming information from the packetized voice treating part 33 or the telephone interface control 34. Judge whether it is the device connected to the common telephone network 13, and perform processings (exclusive control of the switch part 36, etc.) according to the decision result, and. According to the network to which the partner point device is connected, call origination is directed to the packetized voice treating part 33 or the existing telephone interface control 34 at the time of call origination. The switch part 36 is controlled and control of which audio stream to connect to the hand set 19 is also performed.

[0035]When communicating with the packet-ized communication apparatus 14 on LAN101, for example, the communication path 121 is used for the packet-ized communication apparatus 30 in this example, and when communicating with the telephones 21 and 22 connected to a common telephone network, the call paths 123 are used for it.

[0036]Whether there is any mating device on LAN101 or it is connected to the common telephone network 13 judge by the network address or telephone number of a mating device. That is, the classification of a partner connecting network is distinguished to a network address or a telephone number at the time of dispatch, and it chooses a connection path according to the discriminated result.

[0037]For example, if a calling destination is the telephone 21, the processor part 31 will distinguish that a partner connecting network is PBX network 13 by the telephone number, and will make a dial signal send from the telephone interface control 34.

[0038]On the contrary, if a calling destination is the packet communication device 14, it will distinguish that a partner connecting network is LAN101 by the network address, and the packet which includes a partner point address from the packetized voice treating part 333 will be made to transmit.

[0039]The network address or telephone number of a calling destination is inputted from a keyboard / mouse 35, and is displayed on the indicator 32.

[0040]As shown in drawing 1, the case where it communicates among the telephones 21 and 22 connected only to the common telephone network 13 must use the channel 122 through the communication gateway 11.

Considering the realistic introductory gestalt that the user who holds established telephone installs the packet-ized communication apparatus 30 newly, like this example, The load of the communication gateway 11 is substantially reduced by providing the bypass passage by the common telephone network 13 between the packet-ized communication apparatus 30 and the telephones 21 and 22.

[0041]Next, the exclusive control of the communication path in the packet-ized communication apparatus 30 is explained.

[0042]The processor part 31 of the packet-ized communication apparatus 30, Since the state of both by the side of common telephone network 13 and LAN101 can be recognized through the packetized voice treating part 33 or the telephone interface control 34, when receipt occurs during communication, it deals with busy treatment by exclusive control to the call.

[0043]If the packet-ized communication apparatus 30 will specifically be in the telephone 21 and communicating state which were connected to the common telephone network 13, the processor part 31 will change the voice input of the switch part 31 to the telephone interface control 34 side, and will intercept the voice input from the packetized voice treating part 33. In this state, when receipt occurs from other packet-ized communication apparatus 14, the processor part 31 generates the packet of the purport that it is a busy state, and replies it to the packet

communication device 14 of receipt origin via LAN101 from the packetized voice treating part 33. [0044]On the contrary, if the packet-ized communication apparatus 30 will be in other packet-ized communication apparatus 14 and communicating states which were connected to LAN101, the processor part 31 will change the voice input of the switch part 31 to the packetized voice treating part 33, and will intercept the voice input from the telephone interface control 34 side. When receipt occurs from the telephone 21 connected to the common telephone network 13 in this state, the processor part 31 makes the telephone interface control 34 generate a busy signal, and is replied to the telephone 21 of receipt origin through connection interface line 103 and PBX13.

[0045]Thus, by performing exclusive control to the arrival under communication, the user of the packet communication device 30 will correspond only to the arrival from one network, and can cancel the situation where it is troubled by correspondence when the arrival from both networks overlaps.

[0046]Although the processor part 31 carries out a screen display of there having been mail arrival to the indicator 32 to the arrival under telephone call, it may be made to change the switch part 36 by judgment of the user who checked this screen display.

[0047]Next, a voice mail transfer function is explained.

[0048]When performing acceptance processing as voice mail for the reasons of an absence etc. to the receipt which went via the common telephone network 13 from the telephone 21 as opposed to the packet-ized communication apparatus 30, The sound which received from the connection interface line 103 was voice-file-ized by the packetized voice treating part 33, and also LAN101 is made the mail addressed to through and a self-device, and it transmits to the mail box 11.

[0049]By this the user of the packet-ized communication apparatus 30, The sound which received a message the inside of absent like the answering machine is renewable at arbitrary time, and also the processing voice-mail-ized by communication gateway 11 course becomes unnecessary, and shortening of processing time can be aimed at, and the burden in the communication gateway 11 is mitigable.

[0050]Next, the signal bypass method to an external telephone when the power supply of the packet-ized communication apparatus 30 is disconnected is explained using drawing 3.

[0051]In drawing 3, 40 is a packet-ized communication apparatus with the bypass function at the time of powering off.

The control section which has the function that 45 is equivalent to the packet-ized communication apparatus shown with the numerals 30 of drawing 2, the telephone by which 41 is put side by side outside, and 42 are the hand set.

[0052]43 and 44 are relay contacts and switchover control is carried out by the processor part 31 shown by drawing 2. In the state where the power supply of the packet-ized communication apparatus 40 is not switched on, the processor part 31 specifically. As shown in drawing 3 (a), the connection interface line 103 changes the relay contact 44 so that it may be connected to the main wire terminal of the telephone 41, and the hand set 42 changes the relay contact 44 so that it may be connected to the hand set terminal of the telephone 41.

[0053]On the contrary, in the state where the power supply of the packet-ized communication apparatus 40 is switched on. As shown in drawing 3 (b), the connection interface line 103 changes the relay contact 44 so that it may be connected to the main wire terminal of the telephone interface control 34 of drawing 2, and the hand set 42 changes the relay contact 44 so that it may be connected to the hand set terminal of the switch part 36 of drawing 2.

[0054]Even if the power supply of the packet-ized communication apparatus 40 is disconnected by controlling in this way, the telephone call which uses the external juxtaposed telephone set machine 41 is securable. If it is made the circuit design which uses the power supply of the office electric supply by the function of the telephone 41 of external juxtaposition, the built-in to the packet-ized communication apparatus 40 is also possible.

[0055]In the above-mentioned example, the packets sent and received by LAN101 may be any of a variable length packet and a fixed length packet.

[0056]Although the case where an audio signal was sent and received was mentioned as the example and explained, it can apply, also when sending and receiving an image or a picture signal. Thereby, it becomes possible to connect a TV phone machine etc. to a common telephone network. When sending and receiving an image or a picture, the indicator 32 functions as an output unit and picture input devices, such as a television camera replaced with and connected to the transmitter of a hand set, turn into an input device.

[0057]

[Effect of the Invention]As explained above, in this invention besides the connect function to a packet form network, The connect function to the common telephone network was added, and also the connection path was chosen by classification of the partner connecting network at the time of dispatch, and a means to choose a connecting network exclusively so that it may be connected to either one of a common telephone network and a packet form network was formed at the time of mail arrival.

Therefore, the processing burden of a communication gateway becomes light by installing the communication apparatus by this invention in the conventional network, and reduction of the interface amount of resources for connecting with a common telephone network can be performed, and cost reduction can be planned.

[0058]The voice call which lets the telephone subscriber line which has already owned telephone for the user who has already held pass is securable, and there is an advantage that a telephone call becomes possible with other packet-ized communication apparatus connected to the packet form network.

[0059]By performing the display which uses a screen also in the case of receipt under telephone call, the convenience that it can process also improves so that a call partner may not understand.

[0060]Since e-mail-ization can be attained without carrying out re connection to a communication gateway by changing into voice mail within a device the sound whose common telephone network received a message, and saving at a mail box, The time reduction of e-mail-izing and the processing burden of a communication gateway are also eased, and it can contribute to reduction of cost.

[0061]Since the communication which uses output units, such as telephone of external juxtaposition, is possible even if it is at the powering-off time, the user of the exclusive duty which uses the device of this invention is absent, and even if it is a case where a power supply is not switched on, other persons can answer.

[0062]Therefore, it will become very effective when the user who already holds the communication apparatus connected to a common telephone network joins a packet form network.

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**TECHNICAL FIELD**

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PRIOR ART

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[Description of the Prior Art]In recent years, the network construction by LAN (Local Area Network) progresses, and the rate of LAN connection of minicomputers, such as a personal computer, is also increasing.

[0003]In such a situation, there is a motion which attains communicative integration by performing voice communication also on LAN in addition to a common telephone network (the PBX exchange network which is private-telephone exchange network is also included).

[0004]As this example, there is a "voice communication system" as shown in drawing 4.

[0005]This voice communication system comprises telephone connected to a common telephone network, a packet-ized communication apparatus connected to the network (it is henceforth called a packet-ized communication network) which communicates with the packet-ized sound, and a communication gateway which realizes those interconnection. The network which put the packetized voice on above-mentioned LAN is an example of a packet-ized communication network.

[0006]In drawing 4, 21 and 22 are telephones connected to PBX network (private-telephone exchange network) 13 or the public telephone network 20.

[0007]104 is a subscriber line of the private-telephone exchange network 13, 105 is a subscriber line of the public telephone network 20, and these serve as the same interface.

[0008]On the other hand, 101 is a network which transmits the packet-ized sound, for example, comprises CSMA/CD (career detection multi-access method with collision detection) LAN of IEEE802.3 standard.

[0009]Two or more packet-ized communication apparatus 14, 15, and 16 are connected to this LAN101.

[0010]The packet-ized communication apparatus 14, 15, and 16 comprise minicomputers, such as a personal computer provided with the hand sets 17, 18, and 19, respectively, It has a function which packet-izes the sound inputted from the hand sets 17-19, and is sent out on LAN101, and a function which changes into the usual audio stream the packetized voice which received via LAN101 conversely, and is reproduced as a sound from the hand sets 17, 18, and 19.

[0011]11 is a mail box which is connected to LAN101 and accumulates the file-ized mail, The packet-ized communication apparatus 14, 15, and 16 accumulate the voice mail file-ized through LAN101 in the mail box 11, or, Voice mail is taken out from other packet-ized communication apparatus accumulated in the mail box 11, it changes into an audio stream within a self-device, and it is possible to reproduce as a sound from the hand sets 17, 18, and 19.

[0012]12 is a communication gateway which controls communication between LAN101 which is a packet-ized communication network, and PBX network 13 which is common telephone networks.

[0013]In this case, although the subscriber line which accommodates the existing telephone is adopted, the interface between private-telephone switchboards may generally be used for the path cord 102 between the private-telephone exchange network 13 and the communication gateway 12.

[0014]In the voice communication system constituted in this way, when performing voice

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[0015]On the other hand, when the voice communication device 14 communicates with the telephone 21 or 22 connected to the private-telephone exchange network 13 or the public telephone network 20, in LAN101, a packetized voice is transmitted through the communication path 122.

[0016]In this case, the packet-ized sound on LAN101 is changed into an audio stream in the communication gateway 12, and is transmitted to the private-telephone exchange network 13 or the public telephone network 20.

[0017]About the sound which faces to the voice communication device 14 in LAN101 from the private-telephone exchange network 13 or public telephone network 20 side, the audio stream is packet-ized by the communication gateway 12, and is sent out to LAN101.

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## EFFECT OF THE INVENTION

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[Effect of the Invention]As explained above, in this invention besides the connect function to a packet form network, The connect function to the common telephone network was added, and also the connection path was chosen by classification of the partner connecting network at the time of dispatch, and a means to choose a connecting network exclusively so that it may be connected to either one of a common telephone network and a packet form network was formed at the time of mail arrival.

Therefore, the processing burden of a communication gateway becomes light by installing the communication apparatus by this invention in the conventional network, and reduction of the interface amount of resources for connecting with a common telephone network can be performed, and cost reduction can be planned.

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**TECHNICAL PROBLEM**

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[Problem(s) to be Solved by the Invention]By the way, although the number of splicing terminals to a packet-ized communication network is increasing when integrating the voice communication in a packet-ized communication network in a form also including a common telephone network, there are many users who hold the telephone actually connected to the common telephone network overwhelmingly.

[0019]Therefore, when integrating voice communication is considered, it is expected that traffic with the telephone connected to the common telephone network carries out a considerable increase.

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[0021]However, the packet-ized communication apparatus connected into a packet-ized communication network if it is in conventional technology, Since it thinks as what performs communication in packet format fundamentally, when integrating voice communication in the form which even the common telephone network included, the problem of load concentrating to a communication gateway and falling into connection impossible or communication impossible occurs.

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**MEANS**

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[Means for Solving the Problem]In this invention, to achieve the above objects besides a connect function to a packet form network, A connect function to a common telephone network was added, and also a connection path is chosen by classification of a partner connecting network at the time of dispatch, and it is characterized by forming a means to choose a connecting network exclusively so that it may be connected to either one of a common telephone network and a packet form network at the time of mail arrival.

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**OPERATION**

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[Function]When communicating among communication apparatus, such as telephone connected to a common telephone network, according to the above-mentioned means, a channel is formed of the connect function to a common telephone network. Between the communication apparatus in a packet form network, a channel is formed of the connect function to the network.

[0027]Therefore, the communication using a communication gateway, It becomes only between the communication apparatus (for example, telephone) connected for seeing to a common telephone network, and the communication apparatus connected only to the packet form network, Concentration of addition to a communication gateway is avoided, and even if it is when there are many communication apparatus connected to a common telephone network, communication of a sound, a picture, etc. can be ensured between the communication apparatus in a common telephone network and a packet form network.

[0028]In the user who has already held the telephone connected to the common telephone network, Since what is necessary is just to connect a general telephone subscriber line to the packet-ized communication apparatus of this invention when installing a packet-ized communication apparatus newly, telephone can be deleted and a sound, a picture, etc. can be communicated economically.

[0029]In this case, since only either is connected and the measures of busy treatment are taken to the arrival of the other when there is mail arrival in a packet form network simultaneously from a common telephone network, it is lost that a user becomes correspondence difficulty.

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[Translation done.]

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EXAMPLE

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[Example]Hereafter, based on the example illustrating this invention, it explains in detail.

[0031]Drawing 1 is a system configuration figure showing one example of the system using the packet-ized communication apparatus by this invention, and has given the same numerals about the thing of the same function as the component of drawing 4.

[0032]In drawing 1, 30 is a packet-ized communication apparatus which has a function connected with a common telephone network both LAN101 (packet-ized communication network).

The connection interface line 103 to the private-telephone exchange network 13 which is the connection path and common telephone network to the packet-ized voice network 101 is provided. The connection interface line 103 is the same interface as the subscriber line which connects the telephones 21 and 22.

[0033]Drawing 3 is a block diagram showing the detailed composition of the packet-ized communication apparatus 30.

The processor part 31 which controls the whole, the indicator 32 which displays various messages, such as mail arrival, the address input screen for partner selection, etc. to a user, the keyboard/mouse part 35 which inputs operation information, and the voice input/output from the hand set 19 are processed, . [ whether the audio stream to the packetized voice treating part 33 which transmits and receives the packetized voice by the side of LAN101, the telephone interface control 34 which controls the subscriber's line interface of a common telephone network, and the hand set 19 is chosen from LAN101 side, and ] It comprises the switch 36 of whether to choose out of the common telephone network 13 side, and these are connected by bus 301.

[0034]The processor part 31 in the device by which the mating device is connected to LAN101 by incoming information from the packetized voice treating part 33 or the telephone interface control 34. Judge whether it is the device connected to the common telephone network 13, and perform processings (exclusive control of the switch part 36, etc.) according to the decision result, and. According to the network to which the partner point device is connected, call origination is directed to the packetized voice treating part 33 or the existing telephone interface control 34 at the time of call origination. The switch part 36 is controlled and control of which audio stream to connect to the hand set 19 is also performed.

[0035]When communicating with the packet-ized communication apparatus 14 on LAN101, for example, the communication path 121 is used for the packet-ized communication apparatus 30 in this example, and when communicating with the telephones 21 and 22 connected to a common telephone network, the call paths 123 are used for it.

[0036]Whether there is any mating device on LAN101 or it is connected to the common telephone network 13 judge by the network address or telephone number of a mating device. That is, the classification of a partner connecting network is distinguished to a network address or a telephone number at the time of dispatch, and it chooses a connection path according to the discriminated



result.

[0037]For example, if a calling destination is the telephone 21, the processor part 31 will distinguish that a partner connecting network is PBX network 13 by the telephone number, and will make a dial signal send from the telephone interface control 34.

[0038]On the contrary, if a calling destination is the packet communication device 14, it will distinguish that a partner connecting network is LAN101 by the network address, and the packet which includes a partner point address from the packetized voice treating part 333 will be made to transmit.

[0039]The network address or telephone number of a calling destination is inputted from a keyboard / mouse 35, and is displayed on the indicator 32.

[0040]As shown in drawing 1, the case where it communicates among the telephones 21 and 22 connected only to the common telephone network 13 must use the channel 122 through the communication gateway 11.

Considering the realistic introductory gestalt that the user who holds established telephone installs the packet-ized communication apparatus 30 newly, like this example, The load of the communication gateway 11 is substantially reduced by providing the bypass passage by the common telephone network 13 between the packet-ized communication apparatus 30 and the telephones 21 and 22.

[0041]Next, the exclusive control of the communication path in the packet-ized communication apparatus 30 is explained.

[0042]The processor part 31 of the packet-ized communication apparatus 30, Since the state of both by the side of common telephone network 13 and LAN101 can be recognized through the packetized voice treating part 33 or the telephone interface control 34, when receipt occurs during communication, it deals with busy treatment by exclusive control to the call.

[0043]If the packet-ized communication apparatus 30 will specifically be in the telephone 21 and communicating state which were connected to the common telephone network 13, the processor part 31 will change the voice input of the switch part 31 to the telephone interface control 34 side, and will intercept the voice input from the packetized voice treating part 33. In this state, when receipt occurs from other packet-ized communication apparatus 14, the processor part 31 generates the packet of the purport that it is a busy state, and replies it to the packet communication device 14 of receipt origin via LAN101 from the packetized voice treating part 33.

[0044]On the contrary, if the packet-ized communication apparatus 30 will be in other packet-ized communication apparatus 14 and communicating states which were connected to LAN101, the processor part 31 will change the voice input of the switch part 31 to the packetized voice treating part 33, and will intercept the voice input from the telephone interface control 34 side. When receipt occurs from the telephone 21 connected to the common telephone network 13 in this state, the processor part 31 makes the telephone interface control 34 generate a busy signal, and is replied to the telephone 21 of receipt origin through connection interface line 103 and PBX13.

[0045]Thus, by performing exclusive control to the arrival under communication, the user of the packet communication device 30 will correspond only to the arrival from one network, and can cancel the situation where it is troubled by correspondence when the arrival from both networks overlaps.

[0046]Although the processor part 31 carries out a screen display of there having been mail arrival to the indicator 32 to the arrival under telephone call, it may be made to change the switch part 36 by judgment of the user who checked this screen display.

[0047]Next, a voice mail transfer function is explained.

[0048]When performing acceptance processing as voice mail for the reasons of an absence etc. to the receipt which went via the common telephone network 13 from the telephone 21 as opposed to the packet-ized communication apparatus 30, The sound which received from the connection

interface line 103 was voice-file-ized by the packetized voice treating part 33, and also LAN101 is made the mail addressed to through and a self-device, and it transmits to the mail box 11.

[0049]By this the user of the packet-ized communication apparatus 30, The sound which received a message the inside of absent like the answering machine is renewable at arbitrary time, and also the processing voice-mail-ized by communication gateway 11 course becomes unnecessary, and shortening of processing time can be aimed at, and the burden in the communication gateway 11 is mitigable.

[0050]Next, the signal bypass method to an external telephone when the power supply of the packet-ized communication apparatus 30 is disconnected is explained using drawing 3.

[0051]In drawing 3, 40 is a packet-ized communication apparatus with the bypass function at the time of powering off.

The control section which has the function that 45 is equivalent to the packet-ized communication apparatus shown with the numerals 30 of drawing 2, the telephone by which 41 is put side by side outside, and 42 are the hand set.

[0052]43 and 44 are relay contacts and switchover control is carried out by the processor part 31 shown by drawing 2. In the state where the power supply of the packet-ized communication apparatus 40 is not switched on, the processor part 31 specifically. As shown in drawing 3 (a), the connection interface line 103 changes the relay contact 44 so that it may be connected to the main wire terminal of the telephone 41, and the hand set 42 changes the relay contact 44 so that it may be connected to the hand set terminal of the telephone 41.

[0053]On the contrary, in the state where the power supply of the packet-ized communication apparatus 40 is switched on. As shown in drawing 3 (b), the connection interface line 103 changes the relay contact 44 so that it may be connected to the main wire terminal of the telephone interface control 34 of drawing 2, and the hand set 42 changes the relay contact 44 so that it may be connected to the hand set terminal of the switch part 36 of drawing 2.

[0054]Even if the power supply of the packet-ized communication apparatus 40 is disconnected by controlling in this way, the telephone call which uses the external juxtaposed telephone set machine 41 is securable. If it is made the circuit design which uses the power supply of the office electric supply by the function of the telephone 41 of external juxtaposition, the built-in to the packet-ized communication apparatus 40 is also possible.

[0055]In the above-mentioned example, the packets sent and received by LAN101 may be any of a variable length packet and a fixed length packet.

[0056]Although the case where an audio signal was sent and received was mentioned as the example and explained, it can apply, also when sending and receiving an image or a picture signal. Thereby, it becomes possible to connect a TV phone machine etc. to a common telephone network. When sending and receiving an image or a picture, the indicator 32 functions as an output unit and picture input devices, such as a television camera replaced with and connected to the transmitter of a hand set, turn into an input device.

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[Translation done.]

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## DESCRIPTION OF DRAWINGS

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[Brief Description of the Drawings]

[Drawing 1]It is at the system configuration time which shows one example of the packet-ized communications system using the packet-ized communication apparatus by this invention.

[Drawing 2]It is a block diagram showing the detailed composition of the packet-ized communication apparatus in an example.

[Drawing 3]It is a lineblock diagram of the packet-ized communication apparatus which provided the connection switching circuit with an external juxtaposed telephone set machine at the time of powering off.

[Drawing 4]It is a system configuration figure showing the example of the conventional packet-ized communications system.

[Description of Notations]

11 -- Voice Mail Box, 12 -- A communication gateway, 13 -- Private-telephone switchboard, 14, 15, 16 -- A packet-ized communication apparatus, 17, 18, 19 -- Hand set, 20: A public telephone network, 21, 22 -- Telephone, 30 -- Packet-ized communication apparatus, 101 -- LAN (packet-ized voice network), 102 -- Communication-interface line, 103, -- connection interface line, 121, 122, 123 -- Communication path, 31 [ -- The existing telephone interface control 35 / -- A keyboard/mouse part, 36 / -- A switch part, 40 / -- A packet-ized communication apparatus with the bypass function at the time of powering off, 41 / -- The telephone of external juxtaposition, 43, 44 / -- Relay contact. ] -- A processor part, 32 -- An indicator, 33 -- A packetized voice treating part, 34

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[Translation done.]

図 1

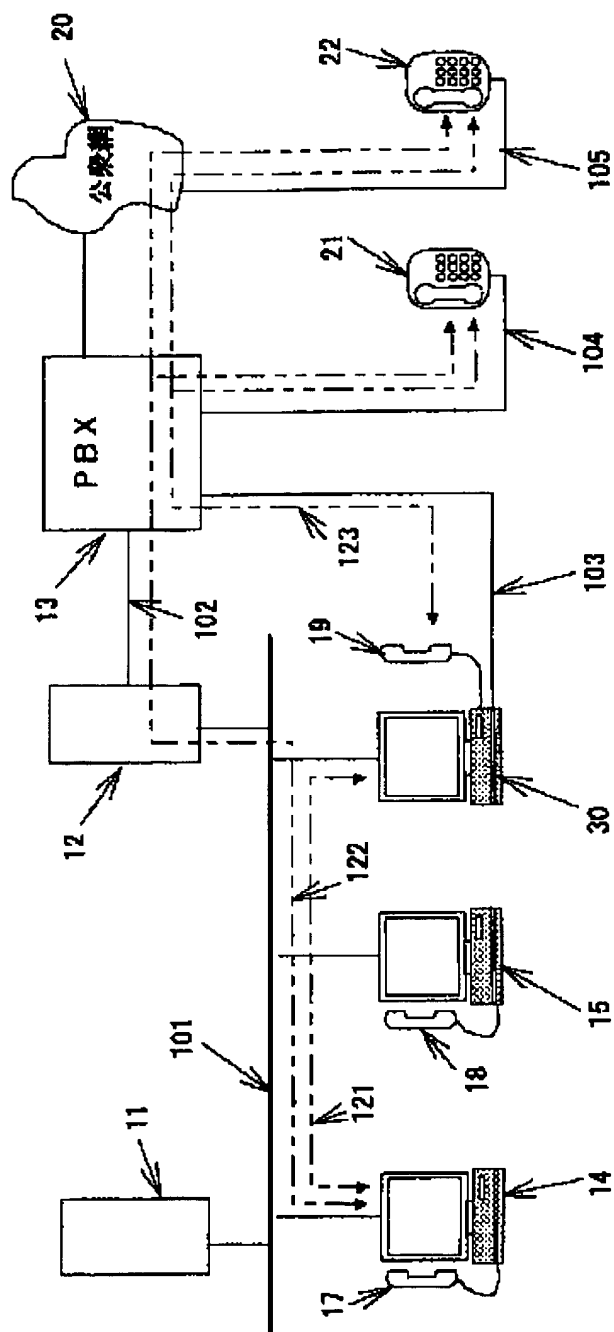


図 2

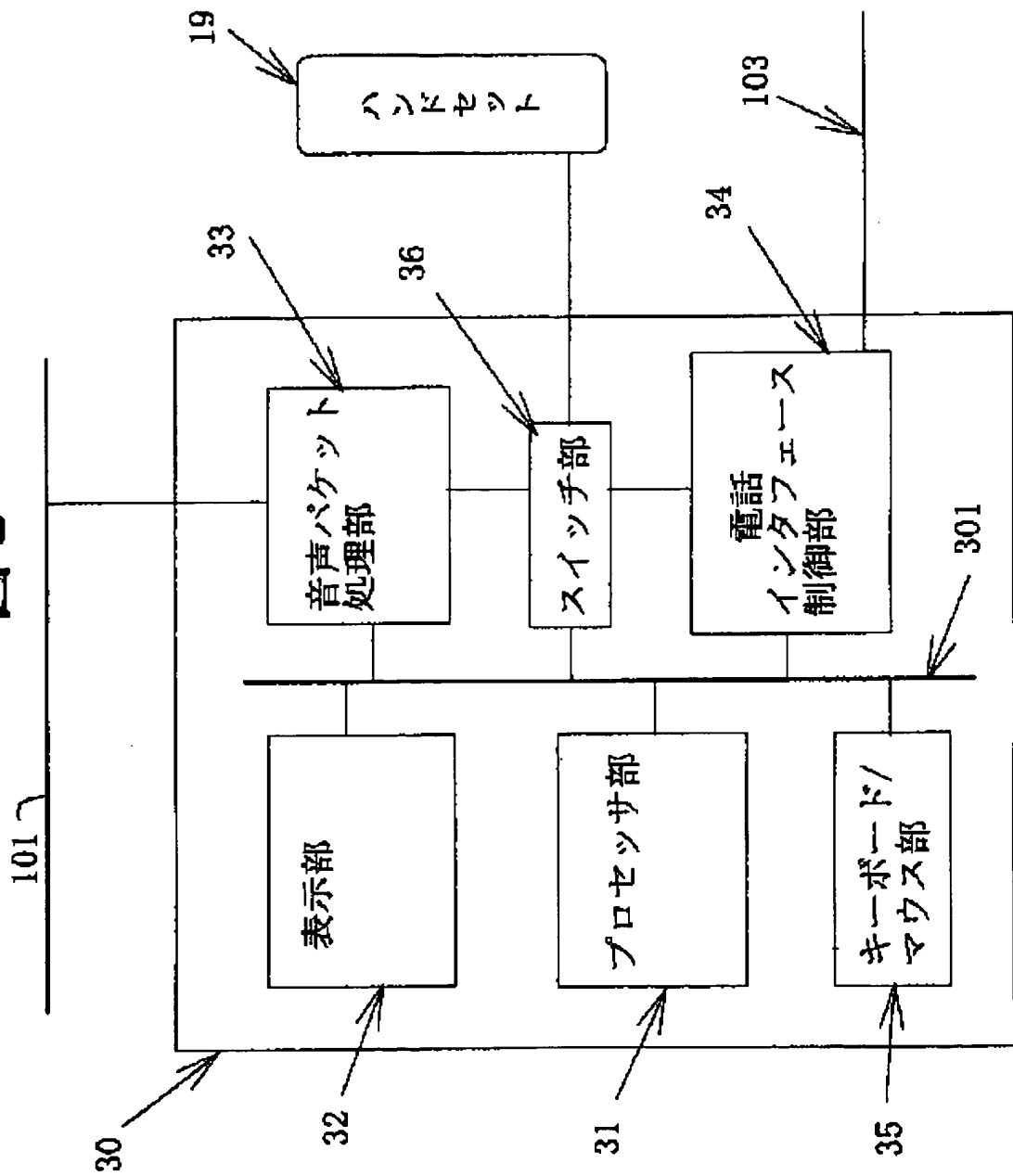
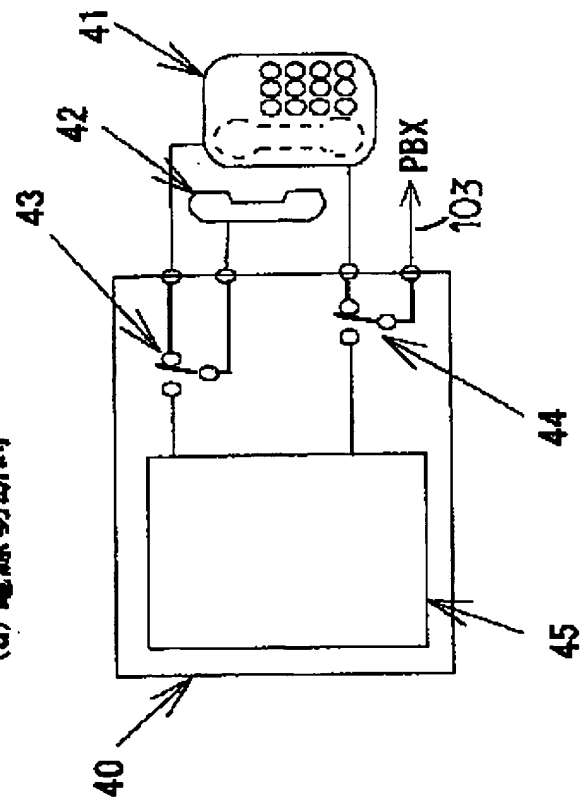


図 3

(a) 電源切断時



(b) 内部論理動作時

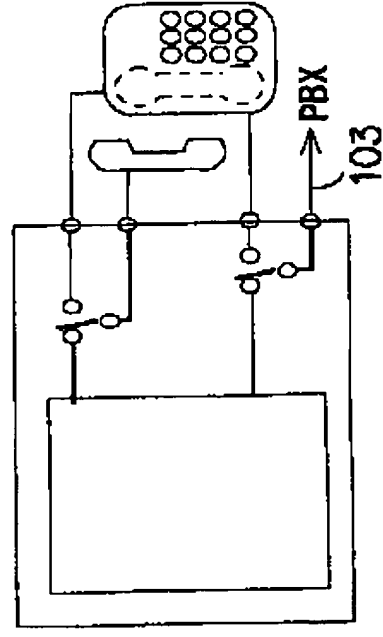


図 4

